

### **ABSTRACT OF THE DISCLOSURE**

A system for monitoring the ambient conditions of a mammalian joint, and particularly a joint that has been instrumented with a joint endoprosthesis includes a sensor supported by a component of the joint endoprosthesis. The system includes a transmission element that is also supported within the body of the patient, preferably within the endoprosthesis. The transmission element transmits a signal indicative of the sensed ambient condition within the instrumented joint. For example, the sensor can be a temperature sensor used to evaluate the temperature within a joint, such as a hip joint, during activity or exercise by the patient.